

Pace Analytical Services, Inc. 7726 Moller Road Indianapolis, IN 46268 (317)228-3100

October 08, 2015

MARK PEACOCK DUKE ENERGY EDWARDSPORT IGCC 15424 E. STATE ROAD 358 Edwardsport, IN 47528

RE: Project: GW Treatment Profile Pace Project No.: 50129133

### Dear MARK PEACOCK:

Enclosed are the analytical results for sample(s) received by the laboratory on October 02, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kenneth Hunt

kenneth.hunt@pacelabs.com

**Project Manager** 

**Enclosures** 

cc: RANDY MONK, DUKE ENERGY EDWARDSPORT IGCC
Mr. Rhett Moody, Duke Energy (Edwardsport Generating
Station)
BRITTANY SCHOFIELD, DUKE ENERGY
EDWARDSPORT IGCC





Pace Analytical Services, Inc.
Not NELAP Accredited
4860 Blazer Parkway

Dublin, OH 43017 (614)486-5421 Pace Analytical Services, Inc. 7726 Moller Road Indianapolis, IN 46268 (317)228-3100

### **CERTIFICATIONS**

Project: GW Treatment Profile

Pace Project No.: 50129133

**Indiana Certification IDs** 

7726 Moller Road, Indianapolis, IN 46268 Illinois Certification #: 200074 Indiana Certification #: C-49-06 Kansas Certification #:E-10177 Kentucky UST Certification #: 0042 Kentucky WW Certification #:98019 Louisiana Certification #: 04076

Ohio VAP Certification #: CL-0065 Oklahoma Certification #: 2014-148 Texas Certification #: T104704355-15-9 West Virginia Certification #: 330 Wisconsin Certification #: 999788130 USDA Soil Permit #: P330-10-00128

### **REPORT OF LABORATORY ANALYSIS**



Pace Analytical Services, Inc. 7726 Moller Road Indianapolis, IN 46268 (317)228-3100

### **SAMPLE SUMMARY**

Project: GW Treatment Profile

Pace Project No.: 50129133

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50129133001	55:Filtered Water 20150929-031	Water	09/29/15 08:50	10/02/15 12:22
50129133002	16:GW Influent 20150929-032	Water	09/29/15 09:30	10/02/15 12:22
50129133003	16:GW IN Process 20150929-033	Water	09/29/15 09:25	10/02/15 12:22
50129133004	55:Filtered Water 20151001-001	Water	10/01/15 10:40	10/02/15 12:22
50129133005	16: GW Influent 20151001-002	Water	10/01/15 10:55	10/02/15 12:22
50129133006	16: GW IN Process 20151001-003	Water	10/01/15 10:50	10/02/15 12:22



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### **SAMPLE ANALYTE COUNT**

Project: GW Treatment Profile

Pace Project No.: 50129133

Lab ID	Sample ID	Method	Analysts	Analytes Reported
50129133001	55:Filtered Water 20150929-031	EPA 200.8	CAW	2
50129133002	16:GW Influent 20150929-032	EPA 200.8	CAW	2
50129133003	16:GW IN Process 20150929-033	EPA 200.8	CAW	2
50129133004	55:Filtered Water 20151001-001	EPA 200.8	CAW	2
50129133005	16: GW Influent 20151001-002	EPA 200.8	CAW	2
50129133006	16: GW IN Process 20151001-003	EPA 200.8	CAW	2



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### **ANALYTICAL RESULTS**

Project: GW Treatment Profile

Pace Project No.: 50129133

Date: 10/08/2015 01:07 PM

Sample: 55:Filtered Water Lab ID: 50129133001 Collected: 09/29/15 08:50 Received: 10/02/15 12:22 Matrix: Water 20150929-031 DF **Parameters** Results Units Report Limit Prepared CAS No. Analyzed Qual 200.8 MET ICPMS Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 ND 0.0010 10/06/15 09:00 10/06/15 19:31 7440-38-2 Arsenic mg/L Selenium ND mg/L 0.0010 10/06/15 09:00 10/06/15 19:31 7782-49-2



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### **ANALYTICAL RESULTS**

Project: GW Treatment Profile

Pace Project No.: 50129133

Date: 10/08/2015 01:07 PM

Sample: 16:GW Influent 20150929- Lab ID: 50129133002 Collected: 09/29/15 09:30 Received: 10/02/15 12:22 Matrix: Water

032	Lab ID. 301	29133002	Collected. 03/23/1	5 09.50	Neceivea. 10	1/02/13 12.22 IV	iallix. VValei	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Met	hod: EPA 20	0.8 Preparation Met	hod: EF	PA 200.8			
Arsenic Selenium	0.067 0.066	mg/L mg/L	0.0010 0.0010	1 1	10/06/15 09:00 10/06/15 09:00	10/06/15 19:36 10/06/15 19:36		



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### **ANALYTICAL RESULTS**

Project: GW Treatment Profile

Pace Project No.: 50129133

Date: 10/08/2015 01:07 PM

 Sample:
 16:GW IN Process 20150929-033
 Lab ID:
 50129133003
 Collected:
 09/29/15 09:25
 Received:
 10/02/15 12:22
 Matrix: Water

 Parameters
 Results
 Units
 Report Limit
 DF
 Prepared
 Analyzed
 CAS No.
 Qual

**200.8 MET ICPMS** Analytical Method: EPA 200.8 Preparation Method: EPA 200.8

Arsenic ND mg/L 0.0010 1 10/06/15 09:00 10/06/15 19:40 7440-38-2 Selenium ND mg/L 0.0010 1 10/06/15 09:00 10/06/15 19:40 7782-49-2



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### **ANALYTICAL RESULTS**

Project: GW Treatment Profile

Pace Project No.: 50129133

Date: 10/08/2015 01:07 PM

Sample: 55:Filtered Water Lab ID: 50129133004 Collected: 10/01/15 10:40 Received: 10/02/15 12:22 Matrix: Water 20151001-001 DF **Parameters** Results Units Report Limit Prepared CAS No. Analyzed Qual 200.8 MET ICPMS Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 ND 0.0010 10/06/15 09:00 10/06/15 19:45 7440-38-2 Arsenic mg/L Selenium ND mg/L 0.0010 10/06/15 09:00 10/06/15 19:45 7782-49-2



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### **ANALYTICAL RESULTS**

Project: GW Treatment Profile

Pace Project No.: 50129133

Date: 10/08/2015 01:07 PM

Sample: 16: GW Influent 20151001- Lab ID: 50129133005 Collected: 10/01/15 10:55 Received: 10/02/15 12:22 Matrix: Water

002	Lab ID. 501	29133005	Collected. 10/01/1	5 10.55	Received. IC	1/02/13 12.22 IV	iainx. watei	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Met	hod: EPA 200	).8 Preparation Met	hod: EF	PA 200.8			
Arsenic Selenium	0.042 0.080	mg/L mg/L	0.0010 0.0010	1 1	10/06/15 09:00 10/06/15 09:00			



10/06/15 09:00 10/06/15 19:58 7782-49-2

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### **ANALYTICAL RESULTS**

Project: GW Treatment Profile

Pace Project No.: 50129133

Date: 10/08/2015 01:07 PM

Selenium

Sample: 16: GW IN Process Lab ID: 50129133006 Collected: 10/01/15 10:50 Received: 10/02/15 12:22 Matrix: Water 20151001-003 DF **Parameters** Results Units Report Limit Prepared CAS No. Analyzed Qual 200.8 MET ICPMS Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 ND 0.0010 10/06/15 09:00 10/06/15 19:58 7440-38-2 Arsenic mg/L

0.0010

ND

mg/L

### **REPORT OF LABORATORY ANALYSIS**



Pace Analytical Services, Inc. 7726 Moller Road Indianapolis, IN 46268 (317)228-3100

### **QUALITY CONTROL DATA**

Project: **GW Treatment Profile** 

Pace Project No.: 50129133

Arsenic

Date: 10/08/2015 01:07 PM

QC Batch: MPRP/18106 Analysis Method: EPA 200.8 QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET

Associated Lab Samples: 50129133001, 50129133002, 50129133003, 50129133004, 50129133005, 50129133006

METHOD BLANK: 1395675 Matrix: Water

Associated Lab Samples: 50129133001, 50129133002, 50129133003, 50129133004, 50129133005, 50129133006

Blank Reporting Parameter Limit Qualifiers Units Result Analyzed ND 0.0010 10/06/15 19:18 mg/L Selenium mg/L ND 0.0010 10/06/15 19:18

LABORATORY CONTROL SAMPLE: 1395676

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.04	0.037	93	85-115	
Selenium	mg/L	.04	0.038	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1395677 1395678

		50128700002	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Arsenic	mg/L	53.5 ug/L	.04	.04	0.090	0.090	90	92	70-130	1	20	
Selenium	mg/L	ND	.04	.04	0.047	0.046	111	107	70-130	3	20	

MATRIX SPIKE SAMPLE: 1395679 MS MS % Rec 50129133004 Spike % Rec Qualifiers Parameter Units Result Conc. Result Limits Arsenic ND .04 0.039 97 70-130 mg/L ND 70-130 Selenium mg/L .04 0.039 96

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



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### **QUALIFIERS**

Project: GW Treatment Profile

Pace Project No.: 50129133

### **DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

**RPD - Relative Percent Difference** 

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

Date: 10/08/2015 01:07 PM

### **REPORT OF LABORATORY ANALYSIS**



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### **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: GW Treatment Profile

Pace Project No.: 50129133

Date: 10/08/2015 01:07 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50129133001	55:Filtered Water 20150929-031	EPA 200.8	MPRP/18106	EPA 200.8	ICPM/2103
50129133002	16:GW Influent 20150929-032	EPA 200.8	MPRP/18106	EPA 200.8	ICPM/2103
50129133003	16:GW IN Process 20150929-033	EPA 200.8	MPRP/18106	EPA 200.8	ICPM/2103
50129133004	55:Filtered Water 20151001-001	EPA 200.8	MPRP/18106	EPA 200.8	ICPM/2103
50129133005	16: GW Influent 20151001-002	EPA 200.8	MPRP/18106	EPA 200.8	ICPM/2103
50129133006	16: GW IN Process 20151001-003	EPA 200.8	MPRP/18106	EPA 200.8	ICPM/2103

# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Face Analytical" ware, parelelies, com

Pace Project No./ Lab I.D. Samples Intact (Y/V) DRINKING WATER SD14133 1950076 SAMPLE CONDITIONS OTHER -Jas -003 2001 (N/Y) 25. 15.  $-i\infty$ 100 Custody Sealed Cooler (N/Y) eol Received on GROUND WATER 1222 18.6 Residual Chlorine (Y/N) Jemp in °C IND CANA RCRA REGULATORY AGENCY Requested Analysis Filtered (Y/N) TIME 10-2-15 STATE: Site Location NPDES DATE UST DATE Signed (MINIDD/YY): 10 (O.) eles 10ACE 经 ACCEPTED BY / AFFILIATION ₹ **§** 8'00% *3*\$ <u>'د</u> FDEX t JeeT sisylsnAt 1 N/A Other Nethanol Preservatives <sub>E</sub>O<sub>S</sub>S<sub>S</sub>BN HOBN HCI Invoice Information: HNO Company Name: OS<sup>z</sup>H 1222 Manager. Pace Profile #: Section C Reference: Pace Project Unpreserved Address: ace Quote Attention: # OF CONTAINERS 10-2-15 SAMPLER NAME AND SIGNATURE SIGNATURE of SAMPLER: PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION DATE 1935 0820 2500 105 เบรบ TIME Report To: MARK D. PENCOCK, DUKE ENERCY RHETT, Misson 4 @ DUKE-ENERGY, COM Purchase Order No.: COMPOSITE END/GRAB CODY TO RECTT MODDY DUKE EMERGY 888 DATE COLLECTED 8 RELINQUISHED BY / AFFILIATION FDEX-BAS Project Name: Elwydros Party Gwy Tregatmen't Profile Project Number: TIME COMPOSITE START DATE Required Project Information: ૭ છ SAMPLE TYPE 0 (G=GRAB C=COMP) 16° GW IN Proc. 2015/00/-003/W 3 (fiel of seboo bilay ees) MATRIX CODE ORIGINAL Section B ¥¥¥° a a a ya ¥ a ta SK FILTERED WATER 2015/001,00 20151001-002 Matrix Codes 20150929-031 20150929-032 20150929-033 Drinking Water
Water
Waste Weste Worder
Product
Soli/Solid
Oil
Wipe
Air
Tissue
Other Email To: MARK, DEACOCK & DUKE-ENERGYCOM Joke Grency - Ednardspart Sation 812 735-5838 47528 ADDITIONAL COMMENTS (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE 55: FILTERED WATER SAMPLE ID IGIGW IN PROCESS BOWARDS PORT IN isyay E, SR 338 16 GW INFLUENT 16: Gr 124 Section D Required Client Information Required Client Information: Requested Due Date/TAT 512 735 - 8583 14 of 16 ø # WILL

F-ALL-Q-020rev.07, 15-May-200

Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1,5% per month for any involces not paid within 30 days.

## Sample Condition Upon Receipt

e e e e e e e e e e e e e e e e e e e	an a way		TOVIUS			
Face Analytical Client Name:	<u>D</u>	uke	<u> </u>	Everan	Project #_	50129133
Courier: Fed Ex UPS USPS Client	Пс	ommer	cial	Pace Other		
Tracking #: <u>64674541778</u> 6	_				_	Date/Time 5035A kits
Custody Seal on Cooler/Box Present:	<b>⊠</b> .no		Seals	intact:  yes	∐ no	placed in freezer
Packing Material: Bubble Wrap Bubble E	-	MNo		Other		
Thermometer 123456 ABCDEF		of Ice:			•	cooling process has begun
Cooler Temperature 18.6°C	Ice \	/isible	in San	nple Containers:	yes no	)
(Corrected, if applicable)				Camamania	Date and Init	tials of person examining
Temp should be above freezing to 6°C	****			Comments:	contents:	102-101343
Chain of Custody Present:	XYes	□No	□N/A			
Chain of Custody Filled Out:	⊠Yes	□No	□N/A			
Chain of Custody Relinquished:	□Yes	DANO.	□N/A			
Sampler Name & Signature on COC:	Yes	□No	□N/A			
Short Hold Time Analysis (<72hr):	□Yes	<u>*                                    </u>	□N/A			
Rush Turn Around Time Requested:	□Yes	<b>∑</b> 6000	□N/A			
Containers Intact:	Yes	□No	□N/A			
Sample Labels match COC:	Yes	□No	□n/a	8.		
-Includes date/time/ID/Analysis All containers needing acid/base pres. have been checked?	· · · ·				2	
exceptions: VOA, coliform, TOC, O&G	MYes	□No	□n/a	9. (Circo HNC	)3 H2SO4 N	aOH NaOH/ZnAc
All containers needing preservation are found to be in com	pliance	with EP	A			
recommendation (<2, >9, >12) unless otherwise noted.						
Residual Chlorine Check (SVOC 625 Pest/PCB 608	)			10. Present	Absent	
Headspace in VOA Vials ( >6mm):	Yes	□No	N/A	11.		
Headspace TCLP Volatiles	Yes	□No		12		
Headspace Wisconsin Sulfide / Acidity	□Yes	□No		13		
Trip Blank Present:	□Yes	No	□N/A	14		
Trip Blank Custody Seals Present	□Yes	□No	XIN/A			
Project Manager Review						
Samples Arrived within Hold Time:	Yes	□No	□N/A	15.		
Sufficient Volume:	Yes		□n/a	16.		
Correct Containers Used:	Yes	□No	□n/A	17.		
Client Notification/ Resolution:	/				Field Data Requ	ired? Y / N .
Person Contacted:			_ Date/	Time:	<del></del>	
Comments/ Resolution:				· · · · · · · · · · · · · · · · · · ·		<u> </u>
			<del></del>			
	1				· · · · · · · · · · · · · · · · · · ·	
	/		1	7/	A	
Project Manager Review:	M	111	70	Jun X	Date:	10/4/15

Form F-IN-Q-290-rev.07, 11May2015

## Sample Container Count

CLIENT: DUKE ENERSY

COC PAGE 1 of 1

COC ID# 195076

Project # 50149133

pH <2 pH >9 pH>12 DG9H AG1U WGFU AG0U R 4 / 6 BPZN BPZU BPZS BP3N BP3U BP3S AG3S AG1H BP3C BP1U SP5T AG2U Sample Line Item 9 6 = 7 α, ო Ŋ 9 ω 4

	Container Codes		· · · · · · · · · · · · · · · · · · ·	÷		
H690	DG9H 40mL HCL amber voa viał	AGOU	AG0U 100mL unpreserved amber glass	BP1N 1 liter HNO3 plastic	DG9P 40mt TSP amber yial	
AG1U	AG1U 1liter unpreserved amber glass	AG1H	AG1H 1 liter HCL amber glass	BP1S 1 liter H2SO4 plastic	DG9S 40mL H2SO4 amber vial	ī
WGFU	4oz clear soil jar	AG1S	AG1S 1 liter H2SO4 amber glass	BP1U 1 liter unpreserved plastic	DG9T 40mL Na Thio amber vial	70
Y	terra core kit	AG1T	AG1T 1 liter Na Thiosulfate amber glass	BP1Z 1 liter NaOH, Zn, Ac	DG9U 40mL unpreserved amber vial	er vial
BP2N	BP2N 500mL HNO3 plastic	AG2N	AG2N 500mL HNO3 amber glass	BP2A 500mL NaOH, Asc Acid plastic	SP5T 120mL Coliform Na Thiosulfate	sulfate
BP2U	500mL unpreserved plastic	AG2S	AG2S 500mL H2SO4 amber glass	BP20 500mL NaOH plastic	JGFU 4oz unpreserved amber wide	wide
BP2S	500mL H2SO4 plastic	AGZU	AG2U 500mL unpreserved amber glass	BP2Z 500mL NaOH, Zn Ac	U Summa Can	
BP3N	BP3N 250mL HNO3 plastic	AG3U	AG3U 250mL unpreserved amber glass	AF Air Filter	VG9H 40mL HCL clear vial	
BP3U	BP3U 250mL unpreserved plastic	ВС1Н	BG1H 1 liter HCL clear glass	BP3C 250mL NaOH plastic	VG9T 40mL Na Thio. clear vial	_
BP3S	BP3S 250mL H2SO4 plastic	BG1S	BG1S 1 liter H2SO4 clear glass	BP3Z 250mL NaOH, Zn Ac plastic	VG9U 40mL unpreserved clear vial	ır vial
AG3S	AG3S 250mL H2SO4 glass amber	BG1T	BG1T 1 liter Na Thiosulfate clear glass	C Air Cassettes	VSG Headspace septa vial & HCl	HCL
AG1S	AG1S 1 liter H2SO4 amber glass	BG1U	BG1U 1 liter unpreserved glass	DG9B 40ml. Na Bisulfate amber vial	WGFX 4oz wide jar w/hexane wipe	wipe
BP1U	BP1U 1 liter unpreserved plastic	BP1A	BP1A 1 liter NaOH, Asc Acid plastic	DG9M 40mL MeOH clear vial	ZPLC Ziploc Bag	